

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION III  
841 Chestnut Building  
Philadelphia, Pennsylvania 19107**

**SUBJECT:** Feasibility Study Report for Groundwater in Areas A, B, and D - NAWC  
**DATE:** 8/8/96  
**FROM:** Kathy Davies  
**TO:** Darius Ostrauskas, RPM

I have reviewed the document and have the following comments:

Page E-3. Alternative B2 includes natural attenuation. Until it is sufficiently demonstrated that natural attenuation is occurring in Area B, it should not be included as an alternative.

1.3.1.3. As previously noted in comments regarding the Focused RI for Groundwater in Areas A and D, pumping influences on groundwater flow on base should be more thoroughly discussed. Additionally, it is not clear if and when the supply wells on base will stop pumping. If they are scheduled for shutdown, it may be useful to have water level recorders in nearby wells to determine the influence of pumping on flow.

Comments on the Focused RI regarding the figures are also applicable here.

Comments previously provided on the Nature and Extent of Contamination chapter are also applicable to the sections here regarding Geologic /Hydrogeologic Controls on Contaminant Migration and 1.3.1.4., Nature and Extent of Contamination.

1.3.2.2. The term "aerial" should be replaced by "areal". Stratigraphic sections should be presented to help depict the variability of the individual rock units and to better define geologic constraints on contaminant migration.

1.3.2.3. The groundwater users on West Bristol Road should be identified.

1.3.2.1. (should be 1.3.2.4.?) Page 1-51. The well with the maximum concentration of carbon tetrachloride (which exceeds MCLs) should be identified.

In the second paragraph, the carbon tetrachloride maximum needs to be updated. Additionally, the shallow groundwater flow

pattern around the plume, if one includes carbon tetrachloride (as written), does not indicate an off-base source. Well data from the 61 and 62 clusters should be incorporated into this discussion, as well as differentiation of flow directions in the shallow and intermediate zones.

2.2. It is not clear that there is sufficient information to identify a final remedy for Area B. Additionally, the first sentence in the last paragraph is incomplete.

2.4.1. Please discuss how "the relevance of current application of groundwater remedies in DNAPL areas is particularly relevant to Area A".

2.4.3.4. Please provide the basis for stating that uncontrolled mobilization of DNAPL is a major concern for Area D.

2.4.3.5. Please provide the basis for stating that DNAPL is possible at Area D.

3.1.1. Natural Attenuation should not be considered an alternative until it has been sufficiently demonstrated that it is occurring in Area B.

3.1.2.3. A remedy for groundwater may not be synonymous with restoration of the groundwater to drinking water or other health-based standards. Please use the terms accordingly.

3.1.3.2. If it is suspected that the rate of natural attenuation is such that it is protective of current or potential future users of the groundwater, then the mechanism by which it occurs must be demonstrated so that NA can be considered as an alternative.

4.2.1. If the presence of DNAPL is suspected in Area A, as stated here, then a TI waiver should be considered for the suspected DNAPL zone.

4.2.3. It is stated here that WTMA No. 26 is located generally north of Area A and serves as a collection point for contaminated groundwater between the base and the municipal well. It is not clear that Well 26 will collect all of the contaminated groundwater emanating from Area A. The area of attainment over which the cleanup goals are to be met begins at the boundary of any waste remaining in place (including DNAPLs) and encompasses the entire plume of contamination.

If on-site containment is selected as the remedial goal for groundwater, then the ARARs must be waived. The basis for waiving the ARARs should be well documented and presented earlier in the document.

The discussion on Page 4-23 relating the capability of WTMA No. 26 to provide the necessary capture zone to adequately intercept contaminants in the off-site groundwater must be supported by data illustrating the capture zone, the plume of contamination emanating from Area A, the projected capture zone of the on-site extraction wells, etc.

In the discussion for overall protection of human health and the environment, it is not clear as to what is meant by "actively remediating the Area A aquifer". Please clarify.

It is not clear why a TI waiver is not being currently considered. It is noted repeatedly in this document that the presence of DNAPL is suspected in Area A.

4.3.2. As noted previously, trends in contaminant concentrations are insufficient in demonstrating the viability of natural attenuation as an alternative.

4.3.3. As previously discussed, it is recommended that a 4-5 day pumping test, with time-series sampling is conducted in Area B to verify that sustainable levels of contamination can be maintained over time with pumping.

4.4.3. There is no mention of DNAPLs here, yet two references to the possible presence of free-phase contamination were previously noted above. Please clarify these apparent discrepancies.

Additionally, please provide documentation demonstrating that WTMA No. 26 collects all of the contaminated groundwater emanating from Area D.

5.1. The issue regarding the presence of DNAPLs in Area A should be more fully discussed. Statements appear to be contradictory in the report and do not always reflect what is currently accepted in the scientific community regarding their behaviour (e.g. DNAPLs acting as a continuous source of contamination).

General Comment. It is noted that one of the assumptions important to this document is that WTMA No. 26 effectively captures all of the contaminated groundwater emanating from Areas A and D. At one point a water level study was proposed by the Navy to determine the configuration of the capture zone and to verify off-site collection. It is strongly recommended that the study be conducted to corroborate the assumption critical to the design of the extraction system(s).